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EXAMINER

VERBITSKY, GAIL KAPLAN

ART UNIT PAPER NUMBER

2859

DATE MAILED: 01/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/694,772

Applicant(s)

MIKI ET AL.

Examiner

Gail Verbitsky

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 October 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 6-17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 6-17 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 04/16/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Restriction by Original Presentation

1. Newly submitted inventions in claims 6-17 is directed to a method of preparing a flexible wired circuit board that is independent or distinct from the invention originally claimed for the following reasons:

a) the originally claimed invention, i.e., claims 1-5 and new claim 18 is directed to a flexible wired circuit board for measuring temperature.

b) the invention stated in claims 6-17 is directed to a method of preparing/ manufacturing a flexible wired circuit board for measuring temperature.

c) the originally claimed invention and new claim 18 is classified in class 374, subclass 163.

d) the invention stated in new claims 6-17 is classified in class 29.

The inventions are distinct because the device of claims 1-5 does not necessarily require a bonding by a resin film or an adhesive, as stated in claim 7-8, 13-14 and openings, as stated in claim 15, while the invention stated in claims 6-17 does not require that the device has a pitch of 100 microns, as stated in claim 5.

Since Applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for further prosecution on the merits. Accordingly, claims 6-17 are withdrawn from consideration as being directed to non-elected invention. See 37 CFR and MPEP 821.03. Claim 18 has been considered by the examiner.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claim 1 is finally rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. In this case, it appears that the limitation stating that a “base insulating layer formed entirely on said conductor layer” has not been described in the specification.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-5 are finally rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In this case, the claim language is confusing because, it is not clear how the “base insulating layer is formed entirely on said conductor layer” while, said conductor layer Is “arranged on said base insulating layer”. Perhaps applicant should replace “on” in line 4 of claim 1 with –to—or –under—. Is this a proper interpretation of the invention? Furthermore, please note, that in the rejection on the merits, the Examiner considers that the conductor layer formed as a wiring is arranged on the base insulating layer.

Claim Rejections - 35 USC § 103

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7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-2 (as best understood by the Examiner) are finally rejected under 35 U.S.C. 103(a) as being unpatentable over Sommer (U.S. 3966578).

Sommer discloses in Figs. 4-5 a device comprising a substrate 11; a stainless steel mask (foil) 18 is placed over the substrate 11 (col. 2, lines 56-58) so as to define an area where a thermistor material (temperature detecting portion) will be deposited. Then metal electrodes are deposited on said mask (stainless foil) to provide an electrical contact. It is known, that a thermistor is a temperature-sensing element whose electrical resistance (specific for specific temperature ranges) changes in relation to temperature change.

Sommer does not explicitly teach a flexible wired circuit board, as stated in the preamble of claim 1.

With respect to the preamble of claim 1: the preamble of the claims does not provide enough patentable weight because it has been held that a preamble is denied the effect of a limitation where the claim is drawn to a structure and a portion of the claim following the preamble is a self-contained description of the structure not depending for completeness upon the introductory clause. Kropa v. Robie, 88 USPQ 478 (CCPA 1951).

9. Claim 1 (as best understood by the Examiner) is finally rejected under 35 U.S.C. 103(a) as being unpatentable over Kato et al. (U.S. 5823680) [hereinafter Kato].

Kato discloses in Fig. 1 a device comprising a conductor layer having a temperature-detecting portion 2 and is formed a metal (platinum) comprising film. An (specific) electrical resistance of the temperature detecting portion/ resistor 2 is in proportional relation with temperature (col. 3, lines 51-53).

Kato does not explicitly teach a flexible wired circuit board, as stated in the preamble of claim 1.

With respect to the preamble of claim 1: the preamble of the claims does not provide enough patentable weight because it has been held that a preamble is denied the effect of a limitation where the claim is drawn to a structure and a portion of the claim following the preamble is a self-contained description of the structure not depending for completeness upon the introductory clause. Kropa v. Robie, 88 USPQ 478 (CCPA 1951).

10. Claim 1 (as best understood by the Examiner) is finally rejected under 35 U.S.C. 103(a) as being unpatentable over Heine et al. (U.S. 20030152130) [hereinafter Heine].

Heine discloses in fig. 2 a device comprising a conductor layer (metal film/ foil) 3 having a temperature sensing/ detecting portion. The conductive layer, inherently, changes its resistance (specific) proportional to a temperature change.

Heine does not explicitly teach a flexible wired circuit board, as stated in the preamble of claim 1.

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With respect to the preamble of claim 1: the preamble of the claims does not provide enough patentable weight because it has been held that a preamble is denied the effect of a limitation where the claim is drawn to a structure and a portion of the claim following the preamble is a self-contained description of the structure not depending for completeness upon the introductory clause. Kropa v. Robie, 88 USPQ 478 (CCPA 1951).

11. Claims 1, 3-5 (as best understood by the Examiner) are finally rejected under 35 U.S.C. 103(a) as being unpatentable over Schmermund (U.S. 6341892).

Schmermund discloses in Fig. 2 a device comprising a base insulating substrate/board having a conductive layer comprising a temperature detecting portion formed as a wiring made of a thin film platinum/ metal foil) 16 formed in a serpentine pattern (wiring folded in such continuous form that adjacent parts of the wiring parallel are spaced apart from each other at a predetermined interval), as shown in Fig. 2. The portion 16 inherently changes its resistivity (specific resistance) proportionally to a temperature change. As shown in Fig. 2, the conductor layer formed entirely to the base insulating layer in a predetermined (desired) pattern.

Schmermund does not explicitly teach a flexible wired circuit board, as stated in the preamble of claim 1.

With respect to the preamble of claim 1: the preamble of the claims does not provide enough patentable weight because it has been held that a preamble is denied the effect of a limitation where the claim is drawn to a structure and a portion of the claim following the preamble is a self-contained description of the structure not depending for

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completeness upon the introductory clause. Kropa v. Robie, 88 USPQ 478 (CCPA 1951).

Schmermund does not explicitly teach the limitations of claims 4 and 5.

For claim 4: the particular length of the temperature detecting portion, i.e., 50 mm or more, as stated in claim 4, absent any criticality, is only considered to be the "optimum" length of the temperature detecting portion used by Schmermund that a person having ordinary skill in the art at the time the invention was made would have been able to determine using routine experimentation based, among other things, on the temperature range to be measured, etc. See In re Boesch, 205 USPQ 215 (CCPA 1980).

For claim 5: the particular pitch, space between the adjacent parts of the temperature detecting portion, i.e., 100 microns or more, as stated in claim 5, absent any criticality, is only considered to be the "optimum" pitch of the temperature detecting portion used by Schmermund that a person having ordinary skill in the art at the time the invention was made would have been able to determine using routine experimentation based, among other things, on the temperature range to be measured, etc. See In re Boesch, 205 USPQ 215 (CCPA 1980).

12. Claim 1 (as best understood by the Examiner) is finally rejected under 35 U.S.C. 103(a) as being unpatentable over JP 07296786A [hereinafter JP] in view of Potega.

JP discloses in Fig. 1 a device in the field of applicant's endeavor comprising a an integrated wiring such as a flexible printed board (flexible wiring board) comprising a temperature sensor whose temperature detecting portion is a thermistor.

JP does not explicitly teach the particular conductive layer, as claimed by applicant in claim 1.

Potega discloses in Figs. 1, 3, 6 a device/ temperature sensor wherein a conductor layer (aluminum foil/ metal foil) creating two conductive traces between which can be a thermally resistive ink (thermistor element 109, temperature detecting portion) (col. 14, lines 57-64) which exhibits a known (proportional relation) electrical resistance characteristics (specific electric resistance in response to when temperature changes

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(col. 14, lines 8-14), the conductor layer (two conductive traces) and the thermally resistive ink/ thermistor element are positioned on a flexible/ conformable substrate having wirings and circuit elements, as shown in Fig. 6.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the temperature sensor, disclosed by JP, with a temperature sensor comprising a thermistor and conductive layer, as taught by Potega, because both of them are alternate types of temperature sensing devices which will perform the same function, of sensing temperature of an object of interest, if one is replaced with the other.

13. Claim 18 is finally rejected under 35 U.S.C. 103(a) as being unpatentable over Kiec et al. (U.S. 5134248) [hereinafter Kiec] in view of Sommer and. Wienand (U.S. 5037488).

Kiec discloses in Fig. 1 a flexible wired board/ device/ RTD comprising a base insulating layer/ barrier 16, a cover insulating layer/ barrier 16, a conductor layer/ resistive pattern/ metal foil/ film 12 formed onto the base insulating layer 16 and covered with the cover insulating layer 16. The resistive pattern 12 can be a serpentine shape, as shown in Fig. 6B, or any desired shape (col. 10, lines 1-12).

Although it is very well known that RTDs normally comprise a wiring for temperature detecting and a main wiring (lead), Kiec does not explicitly teach the main wiring and the temperature sensing wiring, as stated in claim 18. Kiec does not teach that the conductor is a stainless steel, and that the insulating layers are polyimide, as stated in claim 18.

Sommer discloses in Figs. 4-5 a device in the field of applicant's endeavor wherein; a conductor layer is a stainless steel mask (foil) 18 is placed over an insulating substrate/ layer.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device disclosed by Kiec, so as to make the conductor layer of a stainless steel, as taught by Sommer, because the particular material, i.e., stainless steel, as stated in claim 18, for the conductor layer, absent any criticality, is only considered to be the "optimum" material that a person having ordinary skill in the art at the time the invention was made using routine experimentation would have found obvious to provide for the conductor layer, disclosed by Kiec since it has been held to be a matter of obvious design choice and within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use of the invention. In re Leshin, 125 USPQ 416.

Wienand discloses a device in the field of applicant's endeavor wherein, a temperature sensing resistance/ conductor layer disposed upon an elastic insulating base/ board/ carrier made of polyimide. As shown in Fig. 1, the conductor layer has a main wiring portion 3 and temperature sensing wiring portion 5 formed as one piece in a predetermined (desired) pattern.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device disclosed by Kiec, so as to make the base insulating layer of polyimide, as taught by Wienand, because this particular

material is very well known in the art as a heat resistant material, commonly used with temperature sensors for exhausts.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device disclosed by Kiec, so as to make distinct main portion and temperature measuring portion while in one piece, as taught by Wienand, because the particular shape of the conductor layer, absent any criticality, is only considered to be an obvious modification of the shape disclosed by Kiec because the court has held that a change in shape or configuration, without criticality, is within the level of skill in the art as the particular shape claimed by applicant is nothing more than one of numerous shapes that a person having ordinary skill in the art will find obvious to provide. In re Dailey, 149 USPQ 47 (CCPA 1976).

With respect to the particular material, i.e., polyimide, to make the cover insulating layer, as stated in claim 18: the use of the particular material, i.e., polyimide, as stated in claim 18, for the cover layer, absent any criticality, is only considered to be the “optimum” material that a person having ordinary skill in the art at the time the invention was made using routine experimentation would have found obvious to provide for the cover layer disclosed by Kiec since it has been held to be a matter of obvious design choice and within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use of the invention. In re Leshin, 125 USPQ 416.

Response to Arguments

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14. Applicant's arguments with respect to claims 1-5 and 18 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art cited in the PTO-892 and not mentioned above disclose related devices and methods.

Any inquiry concerning this communication should be directed to the Examiner Verbitsky who can be reached at (571) 272-2253 Monday through Friday 8:00 to 4:00 ET.

GKV

Gail Verbitsky

Primary Patent Examiner, TC 2800



December 29, 2004